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New constraints on MIS 7 and 5 relative sea-level at Bermuda: a speleothem approach

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It is now widely accepted that a sea-level rise is associated with global warming [1]. However, its rate, and the height it might reach by the end of the century remain poorly constrained. This study aims to provide better information and precision on the rates and magnitudes of past sea-level change, for periods when sea-level is close to its modern value, using speleothems from Bermudian caves. Speleothems interrupt their growth when they are submerged by sea-water, so U-Th dating periods of growth in coastal sites allows the reconstruction of past sea-level variation versus absolute time [e.g. 2,3,4]. We will present new MC-ICP-MS U-Th ages, trace elements and isotopic data from a set of speleothems (stalagmites, stalactites, flowstones) collected from -14 to +12 m versus modern sea level from several caves in this northern Atlantic archipelago.
Relative sea-level (RSL) at Bermuda is of particular interest because it is at a distance from northern hemisphere ice sheets where the isostatic response to ice-unloading is uncertain. RSL reconstruction therefore provides both an indicates of possible rates of sea level change, and a test for glacial-isostatic-adjustment (GIA) models.
We will present new relative sea level data for late MIS7, and the different highstands of MIS5. The RSL at Bermuda for these episodes appears to be higher than present. For MIS5a, this is significantly distinct from what is expected from the eustatic sea level. These results will be considered in the context of previous assessments of eustatic change, and of GIA models.

[1] Intergovernmental Panel on Climate Change (2007) Contribution of Working Group I to the Fourth Assessment Report, Cambridge Univ. Press. [2] Harmon et al. (1981) Nature 289, 357-360. [3] Richards et al. (1994) Nature 367, 481-483. [4] Bard (2002) EPSL 196, 135-146.